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FlyBy Math^{TM} Alignment
Michigan Mathematics
Grade Level Content Expectations v.6.04
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Strand: Number and Operations

Understand derived quantities

Grade Level Content Expectation	***FlyBy Math*^{TM} Activities**
N.ME.07.01 Understand derived quantities such as density, velocity, and weighted averages.	--Represent distance, speed, and time relationship for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system. --Use the distance-rate-time formula to predict and analyze aircraft conflicts.
N.FL.07.02 Solve problems involving derived quantities.	--Represent distance, speed, and time relationship for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system. --Use the distance-rate-time formula to predict and analyze aircraft conflicts.

Understand and solve problems involving rates, ratios, and proportions

Grade Level Content Expectation	***FlyBy Math*^{TM} Activities**
N.FL.07.03 Calculate rates of change including speed.	--Use the distance-rate-time formula to predict and analyze aircraft conflicts. --Use graphs to compare airspace scenarios for both the same and different starting conditions and the same and different constant (fixed) rates.
N.FL.07.05 Solve simple proportion problems using such methods as unit rate, scaling, finding equivalent fractions, and solving the proportion equation $a/b = c/d$; know how to see patterns about proportional situations in tables.	--Represent distance, speed, and time relationship for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system. --Use graphs to compare airspace scenarios for both the same and different starting conditions and the same and different constant (fixed) rates.

Strand: Algebra

Understand and apply directly proportional relationships and relate to linear relationships

Grade Level Content Expectation	***FlyBy Math*^{TM} Activities**
A.PA.07.01 Recognize when information given in a table, graph, or formula suggests a proportional or linear relationship.	--Represent distance, speed, and time relationship for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system. --Use the distance-rate-time formula to predict and analyze aircraft conflicts.

A.RP.07.02 Represent directly proportional and linear relationships using verbal descriptions, tables, graphs, and formulas, and translate among these representations.	--Represent distance, speed, and time relationship for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system. --Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.
A.PA.07.03 Given a directly proportional or linear situation, graph and interpret the slope and intercept(s) in terms of the original situation; evaluate y = kx for specific x values, given k, e.g., weight vs. volume of water, base cost plus cost per unit.	--Interpret the slope of a line in the context of a distance-rate-time problem.
A.PA.07.04 For directly proportional or linear situations, solve applied problems using graphs and equations, e.g., the heights and volume of a container with uniform cross-section, height of water in a tank being filled at a constant rate, degrees Celsius and degrees Fahrenheit, distance and time under constant speed.	--Represent distance, speed, and time relationship for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.
A.PA.07.05 Understand and use directly proportional relationships of the form y = mx, and distinguish from linear relationships of the form y = mx + b, b non-zero; understand that in a directly proportional relationship between two quantities one quantity is a constant multiple of the other quantity.	--Represent distance, speed, and time relationship for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system. --Use graphs to compare airspace scenarios for both the same and different starting conditions and the same and different constant (fixed) rates.
Understand and represent linear functions	
Grade Level Content Expectation **A.PA.07.06** Calculate the slope from the graph of a linear function as the ratio of "rise/run" for a pair of points on the graph, and express the answer as a fraction and a decimal; understand that linear functions have slope that is a constant rate of change.	***FlyBy Math*^TH^ Activities** --Represent distance, speed, and time relationship for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system. --Interpret the slope of a line in the context of a distance-rate-time problem.
A.PA.07.07 Represent linear functions in the form y = x + b, y = mx, and y = mx + b, and graph, interpreting slope and y-intercept.	--Represent distance, speed, and time relationship for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system. --Interpret the slope of a line in the context of a distance-rate-time problem.